IN THE CLAIMS

The present status of the claims in the application after this amendment is as follows:

Claim 1. (Twice amended) A method of sizing surface cracks in a metal surface using sound wave measurements of propagation and reflection thereof which are initiated at an optimal degree angle to the surface comprising the steps of:

acquire sound wave data by displacing a transducer along the direction of propagation of the sound waves;

review the acquired signals for a crack tip signal;

review the acquired sound wave data for signal reflections at 1/2 skip, full skip and 1 1/2 skip locations,

when 1/2 skip, full skip and 1 1/2 skip reflections are detected [reviewing reflected signals for a crack tip signal;]

reviewing reflected signal data to determine if no crack tip signal was detected and that reflections are present at the ½ and 11/2 skip locations;

using target motion [TOF with MCS correction] time of flight (TOF) data to estimate the depth of the crack and correcting the TOF depth estimate for a mode converted signal (MCS) with MCS correction to size the surface crack only if no full skip reflection signal is present.

Claim 2. (canceled)

Claim 3. (Twice amended) A method as set forth in claim 1 including the further steps of:

reviewing signal reflected data to determine if full skip signal was present in addition to the 1/2 skip and 11./2 skip signals;

using the ratio of the 1 skip amplitude to the average of the ½ skip and 11/2 skip amplitudes [FSN sizing method] to size the surface crack whenever
all three of the above signals are present.

Claim 4. (Twice amended) A Full Skip Normalization FSN method using the ratio of a full skip signal amplitude to the average of outer diameter skip signal amplitudes to depth size deep cracks propagating from a surface located opposite from a UT transducer comprising the steps of:

measuring a full skip signal amplitude;

measuring a series of outer diameter signal amplitudes;

averaging said series of outer diameter signal amplitudes;

forming a ratio of the measured full skip signal amplitude to the averaged series of outer diameter amplitudes; and

converting the ratio of the full skip signal amplitude to averaged outer diameter amplitudes to a remaining wall thickness using an empirically derived formula.

Claim 5. (canceled).

Claim 6. (amended) A method as set forth in claim 4 where for the given application of the thin wall tubing with

thickness approximately 0.050 inches, the remaining wall thickness is obtained by the following formula:

Remaining Wall (inches) = 0.031 - FSN ratio * 0.031.

Claim 7. (amended) A method as set forth in claim 3 wherein the sound waves are waves measured by an ultrasonic transducer initiated at an appropriate angle to the metal surface being tested.

Claim 8. (original) A method as set forth in claim 7 wherein the metal surface is a composite or otherwise intimately bonded layer of metal tube or plate having a crack width less than 0.001 in.

Claim 9. (Twice amended) [A mode conversion method (MCS) as set forth in claim 1 where [the] an **UNCORRECTED UT DEPTH ESTIMATE** is the UT system depth measurement based on the conventional shear wave target motion time of flight (TOF) analysis] A method of sizing surface cracks in a metal surface as set forth in claim 1 wherein the TOF depth estimate is the UT system depth.

Claim 10. (canceled)

Claim 11. (Twice amended) A [mode conversion] method

[(MCS)] as set forth in claim [10] 9 where a **CORRECTED TOF DEPTH PREDICTION** is the **UNCORRECTED UT DEPTH ESTIMATE** value multiplied by a MCS correction factor.

Claim 12. (amended) A method as set forth in claim 11 wherein the metal surface is a thin wall tube and the MCS correction factor is determined experimentally and is between 1.6 and 1.9.

Claim 13. (canceled)